

Joint Government Oversight Committee

July 23, 2007

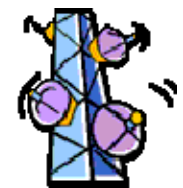
John Gillispie

Executive Director, Iowa Communications Network



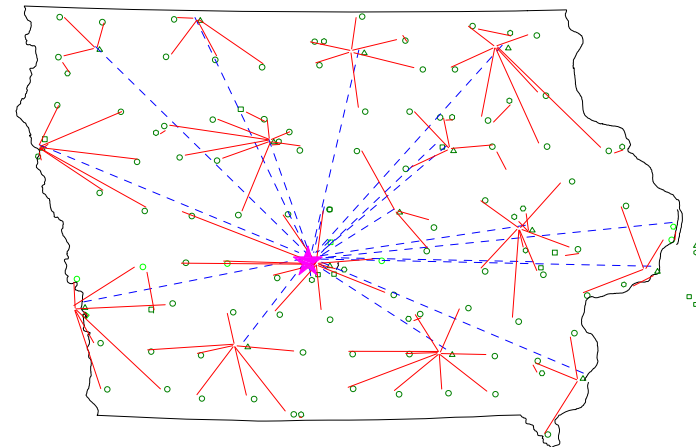
Distance Learning Equalizer

- Early 1980's – Several Iowa Community Colleges installed microwave telecommunications networks for distance learning
- 1987 – Community College proposal for a statewide microwave-based network to connect Community Colleges
- 1989 – Bill for a shared statewide communications network
- Kiewit won award to construct Parts I and II of the Network



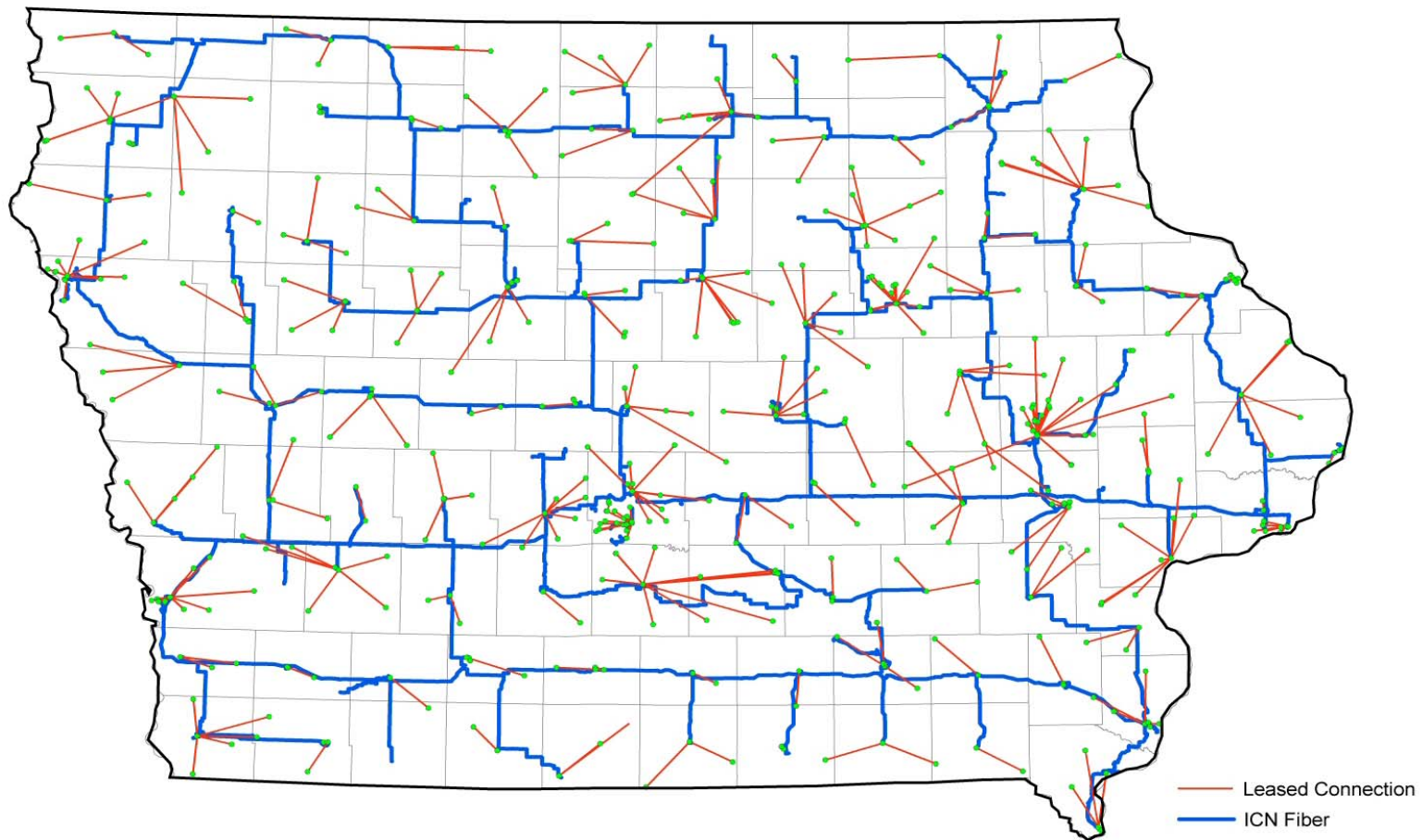
Connecting Education

- Part – 1 Community Colleges, IPTV, Regent Universities, Capitol Complex
- Part – 2 County Point of Presence
- Star-on-Star Topology
- Owned Fiber
- Funded through Certificates of Participation
- Initial site operational - November 1993



Connecting Schools, Libraries, and AEAs

Part III



Connecting Schools, Libraries, and AEAs

Part III – 1995 - 2001

- ICN first statewide broadband network
 - 474 video sites
 - 5 year construction plan
 - DS3 requirement (broadcast quality transmission) – 7 year leases
 - State paid for connections and leases through General Fund appropriations
 - Schools paid for classroom equipment
 - Video sessions
 - Other services fees



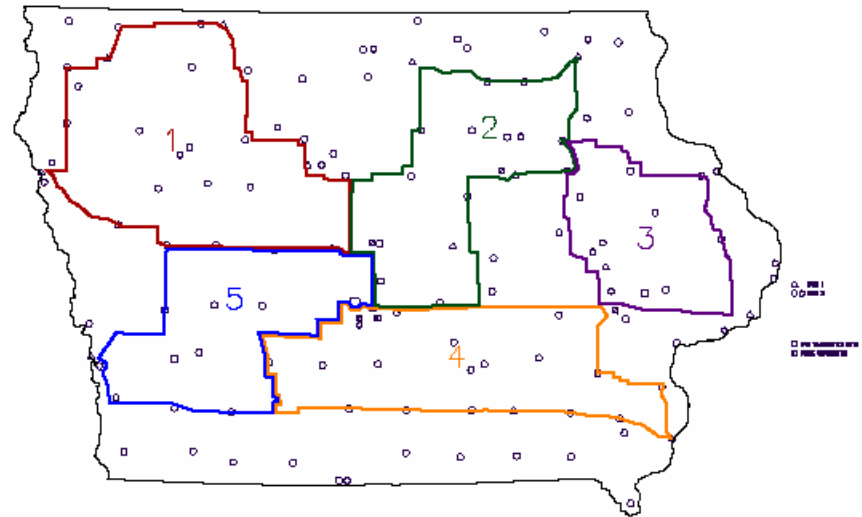
National Guard Lightways Project

- Connected over 50 armories to ICN
- FY 1996
- Federal Funding
- Fiber transferred to the state upon completion of the project
- Used for extensive training



Need for Upgrade Realized

- More DS-3 connections than in the original backbone plan
 - 500 video sites in the original plan – 500th 1997
 - 600th connection 1998
- Ring configuration for redundancy
- MPEG compression technology – efficient use of capacity
- ATM backbone
- Efficient funding piggyback with Part III



Network/Agency Governance

- After July 1994
 - Independent State Agency
 - Governed by the Iowa Telecommunications and Technology Commission
 - Funded mostly through General Fund appropriations



Who We Can Serve

- K-12 Schools - Public and Private
- Higher Education – Public and Private
- State and Federal Government Agencies
- Homeland Security and Emergency Management
- Telejustice
- Hospitals and Physician Clinics
- Public Libraries



Built-in Business Constraints

- Limited customer base
- Limited collaboration capabilities with other telecommunications companies
- Same price for services anywhere in the state (postalized pricing)
- Project funding constraints



State Communications Added

- 1997 – State Communications Division moves from DGS
- Capitol Complex Telecommunications Services
- 18 FTE positions



Who Should Own the Network?

- 1994 Iowa Network Services made offer to buy the ICN
- 1995 - HF 465 Report
- 1999 - Ultra Pro report
- 2003 - Legislation passed and was vetoed to develop a process to sell the network
- 2004 - Ad Hoc Committee – Sale of the Assets plan

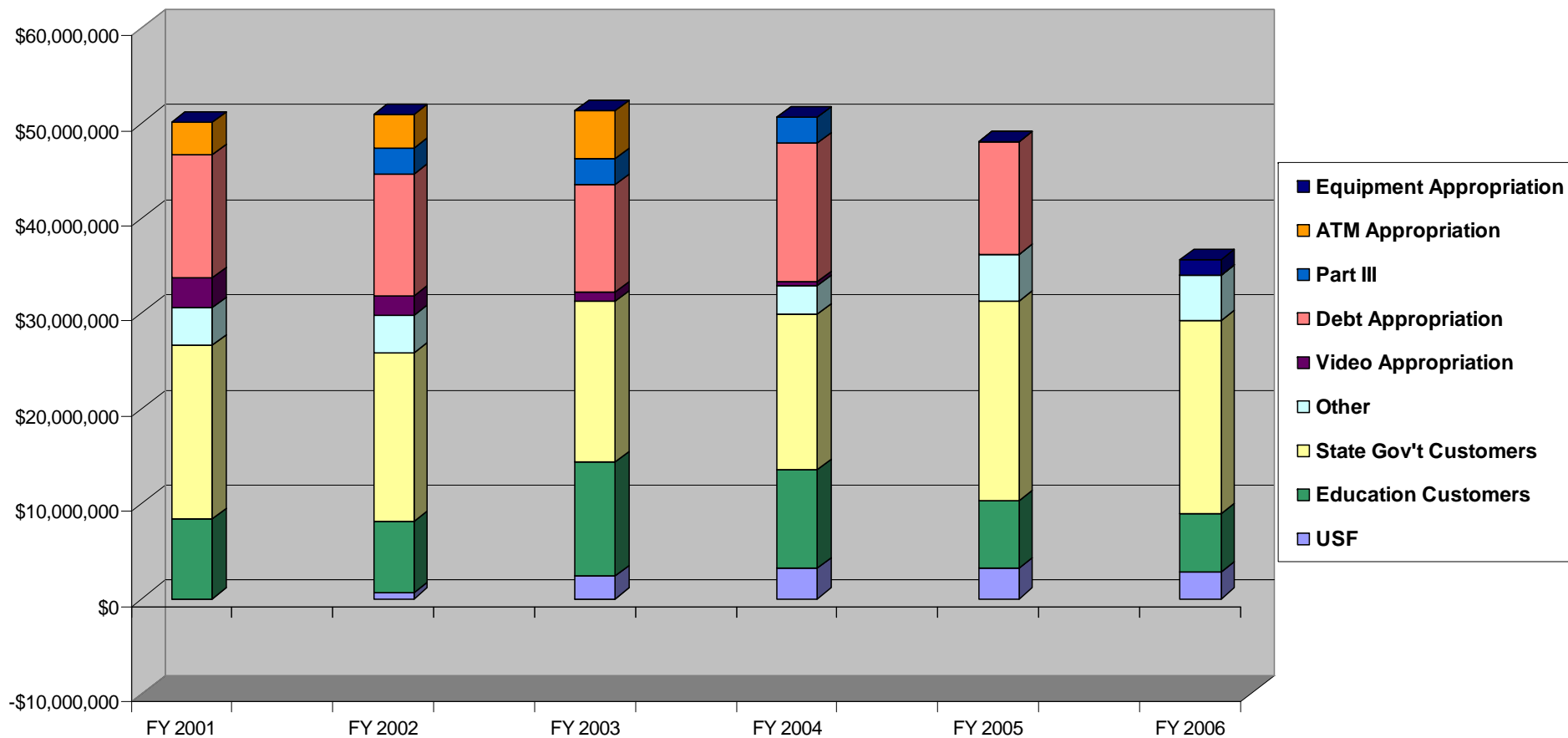


ICN - By the Numbers

- 3,100 miles owned fiber
- 3,500 miles leased fiber
- 758 broadcast quality two-way video classrooms
- The state has invested just over \$227 million (including financing costs) in the network
 - Parts I and II Construction (COPS) \$114.5 million
 - Parts I and II Finance Costs \$64.2 million
 - Part III Construction Costs \$35.9 million
 - Network Upgrade \$12.7 million
 - Federal Construction \$4 million



ICN Funding Sources



Telecommunications and IP Convergence

- Television, Internet, Telephone, Video services blending together
- Change to digital standards
- Internet Protocol
- Multi-play providers
- Expertise and knowledge base requirements

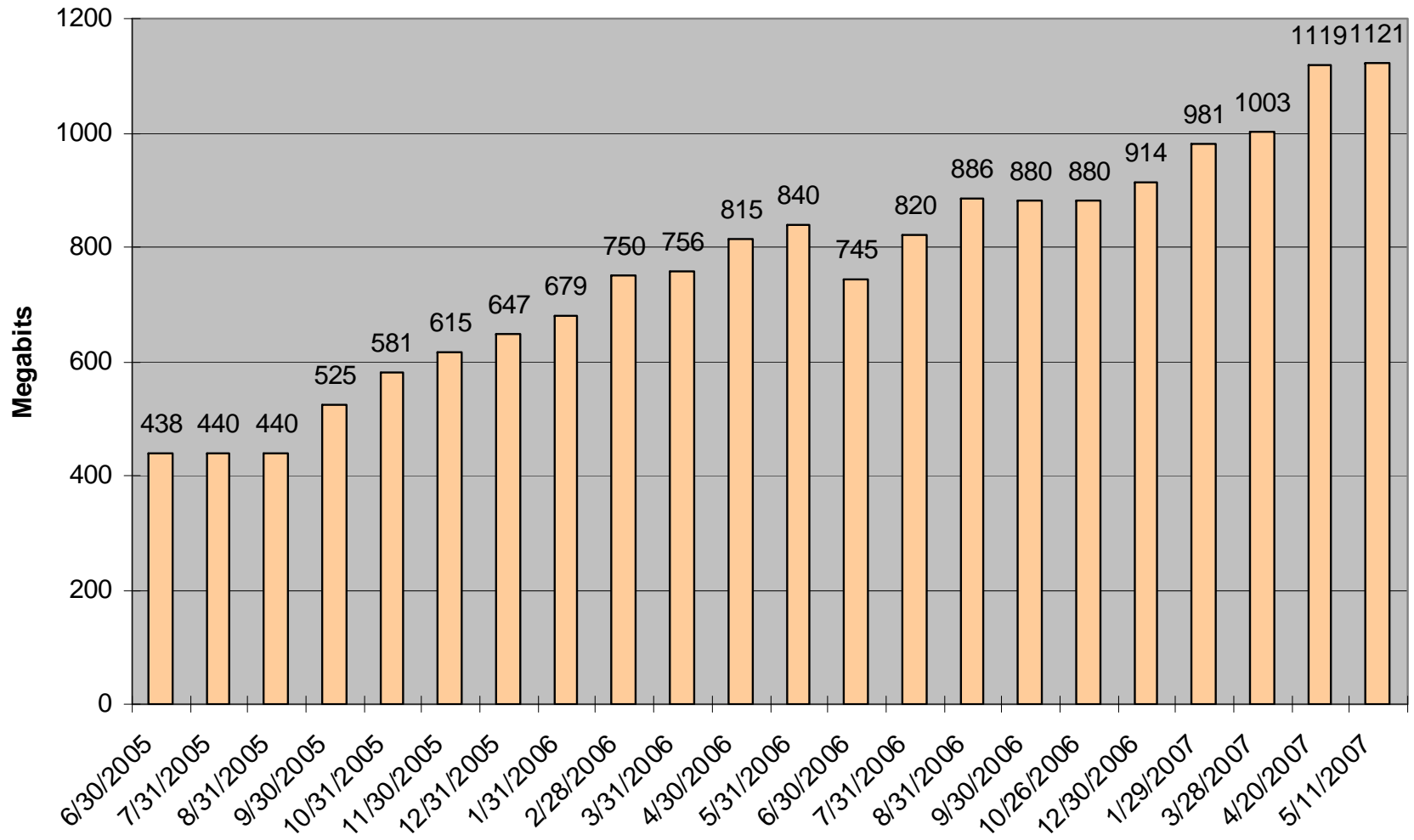


Broadband, Ethernet, IP

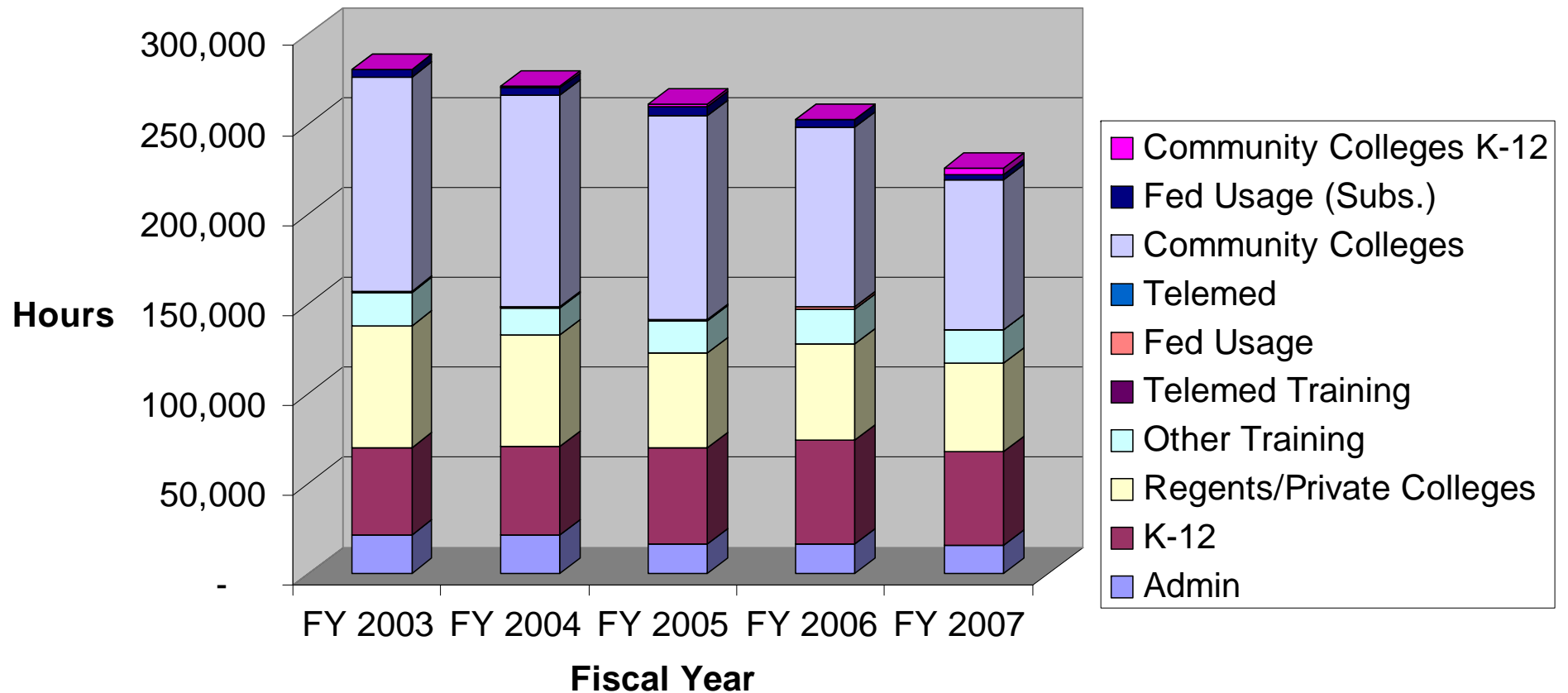
- The importance of the Internet Protocol technology
 - Services convergence
 - All packets (voice, internet, data, and video) are transported the same backbone network
- ICN IP
 - 2004 DDS (Portion of Voc Rehab) First Voice over IP roll out
 - 2005 HLSEM first video over IP demo
 - 2005 Department of Ed over 300 IP video connections



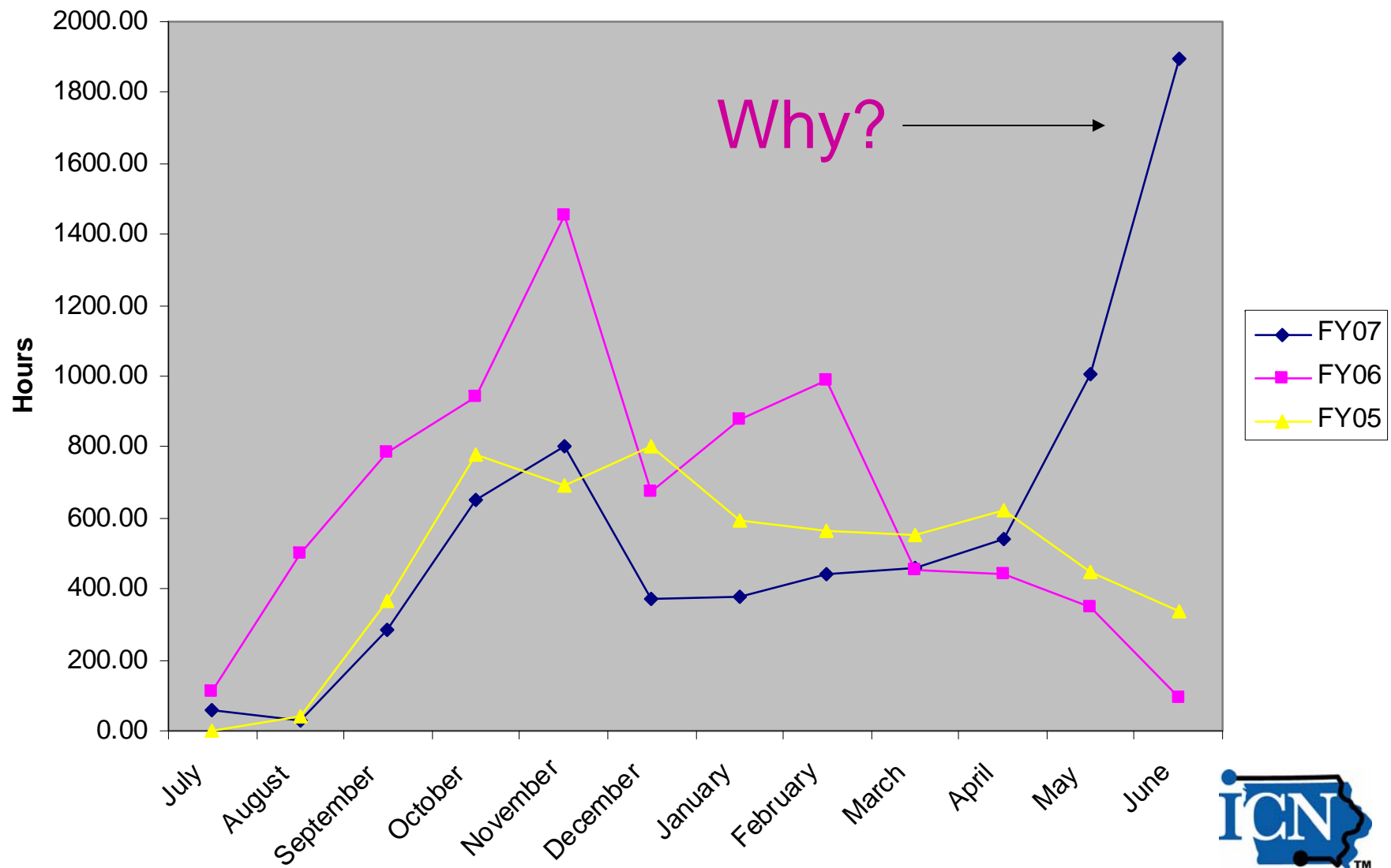
ICN Internet Growth



Video Usage By Rate Category



K-12 Video Usage – Collaboration is Key

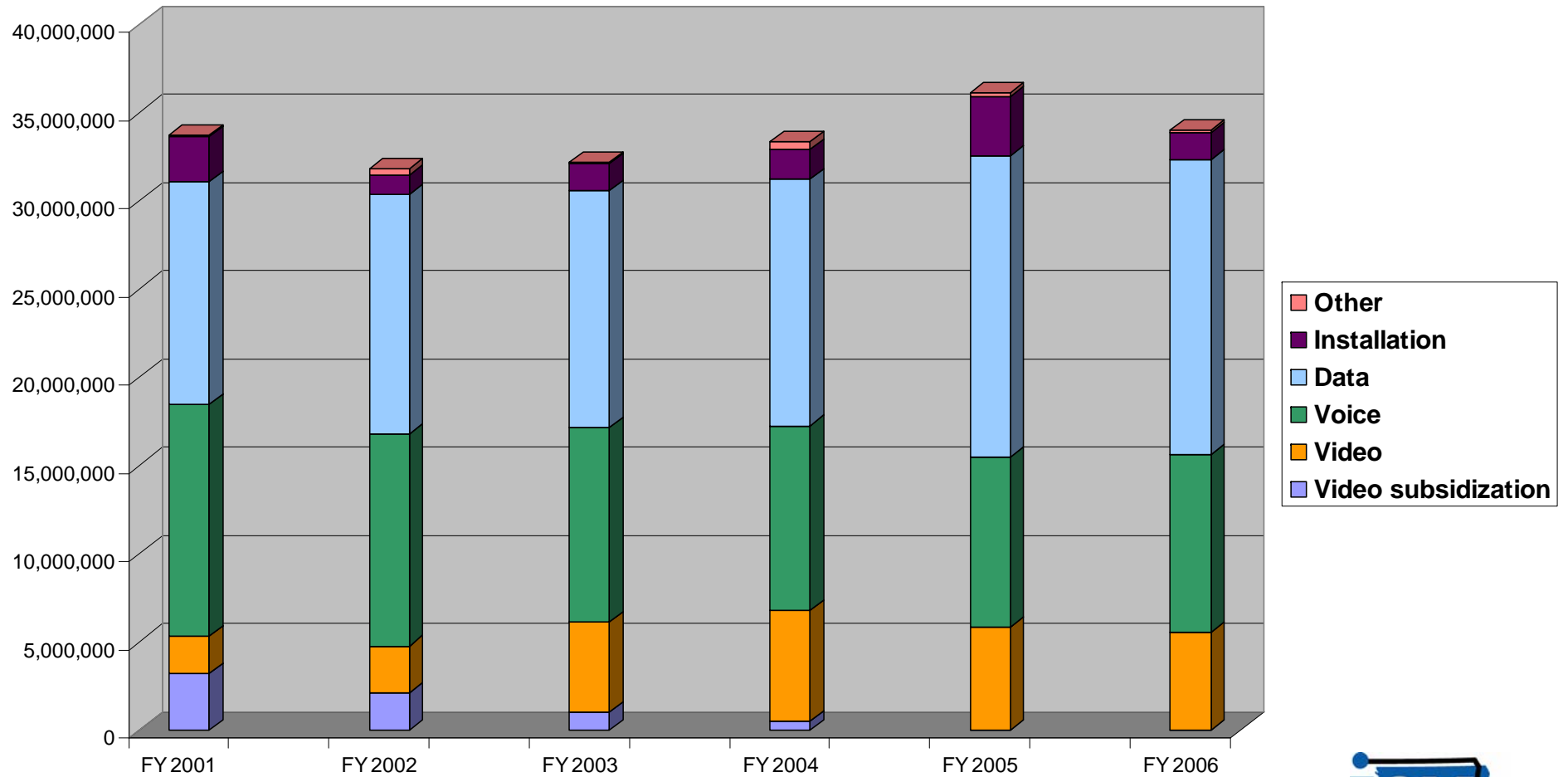


Video Site Status

- Since the beginning of FY 2003
 - 48 video sites have been connected to the Network
 - 46 video sites have been disconnected
- Reasons for closure
 - Troops deployed
 - Rooms needed because of space shortage
 - Schools closed
 - Multiple sites at the facility
 - Other sites in the vicinity



Operating Revenues by Service Category



ICN

Keeping in touch with our Troops

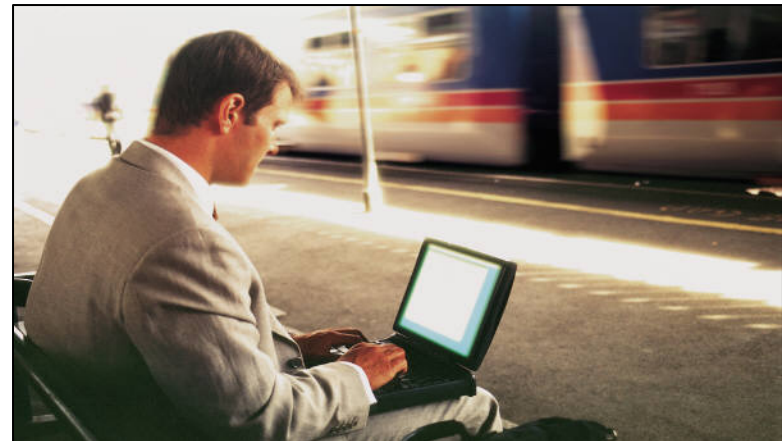


Internet Transforms our Lives

- 31 billion e-mails sent each day
- More than 12.4 million Americans telecommute full-time
- More than 14 million Americans have placed a call on the Internet



With Broadband.....



With Broadband.....



With Broadband.....



Our
Iowa
Store

"Our Iowa Store promotes and supports Iowa authors, poets, artists, innovative manufacturers and makers of fine Iowa treats."

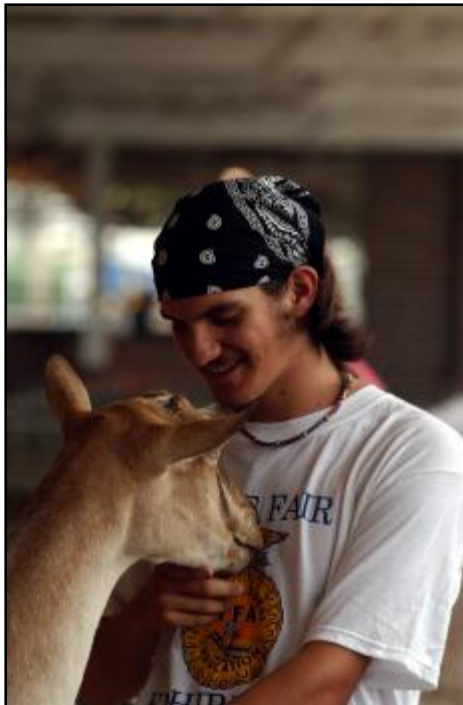
- Carla & Chuck Offenburger, Proprietors



With Broadband.....



With Broadband.....

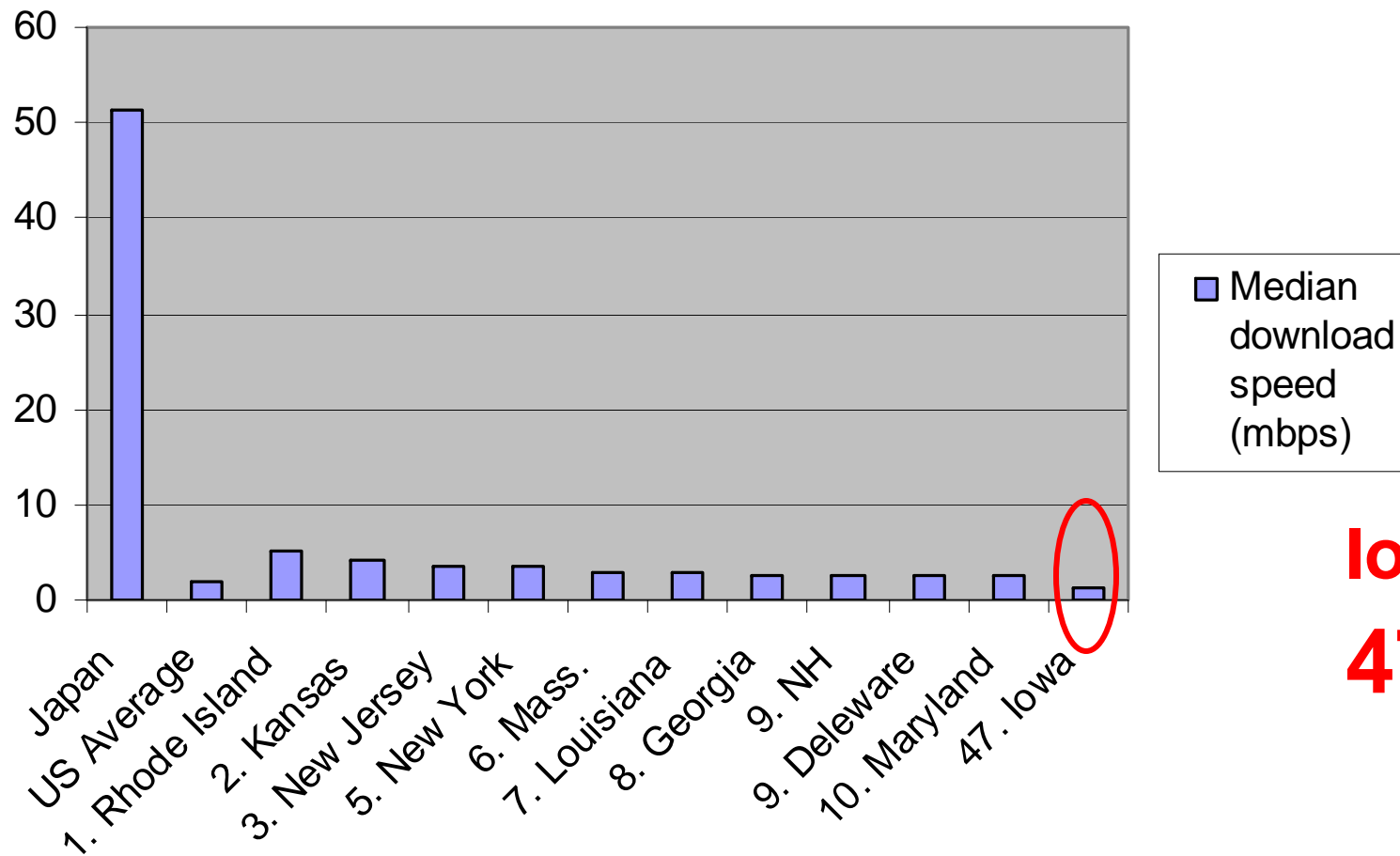


Synchronous vs. Asynchronous

- Video over IP does not perform well using asynchronous transmission
 - Two-way transmission
 - Different upload and download speeds
- Most commercial Internet is asynchronous



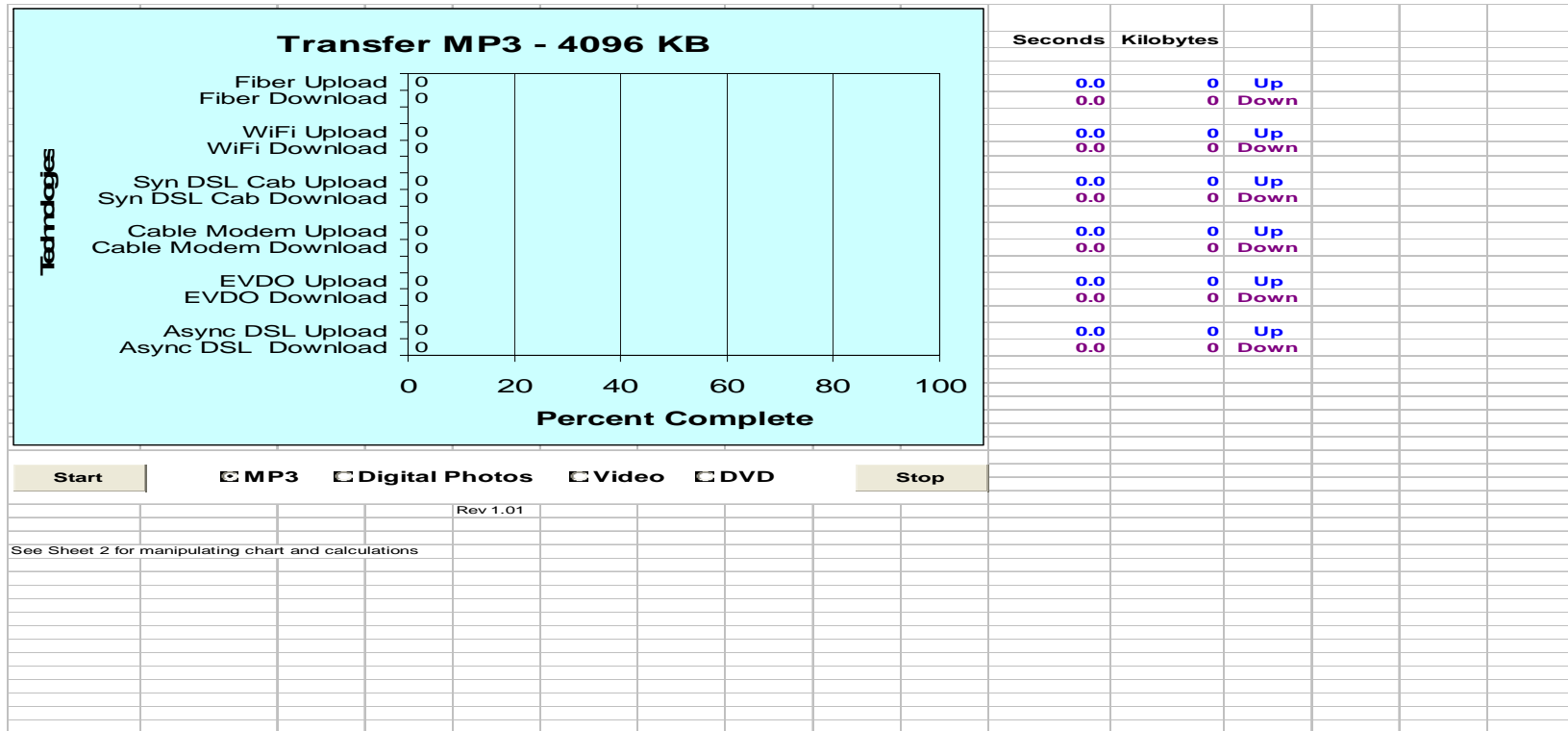
Broadband Speed – How Iowa Compares



**Iowa is
47th**

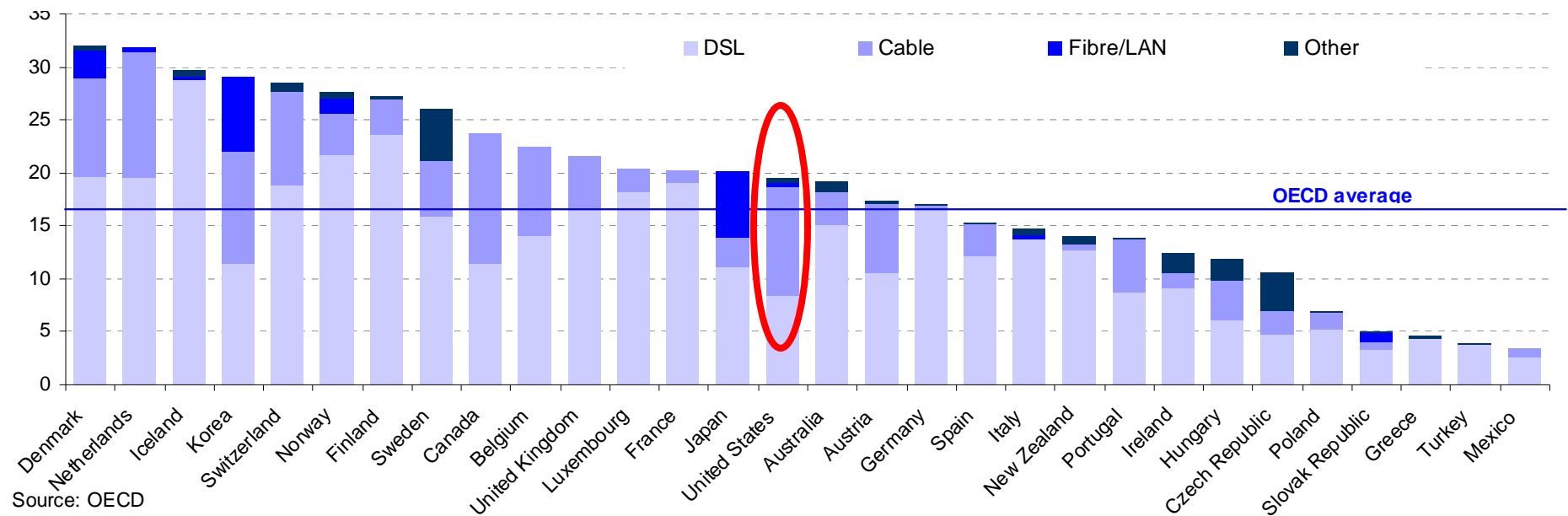


Competition – Why Speed Matters



OECD Broadband Subscribers per 100 Inhabitants

By Technology – December 2006



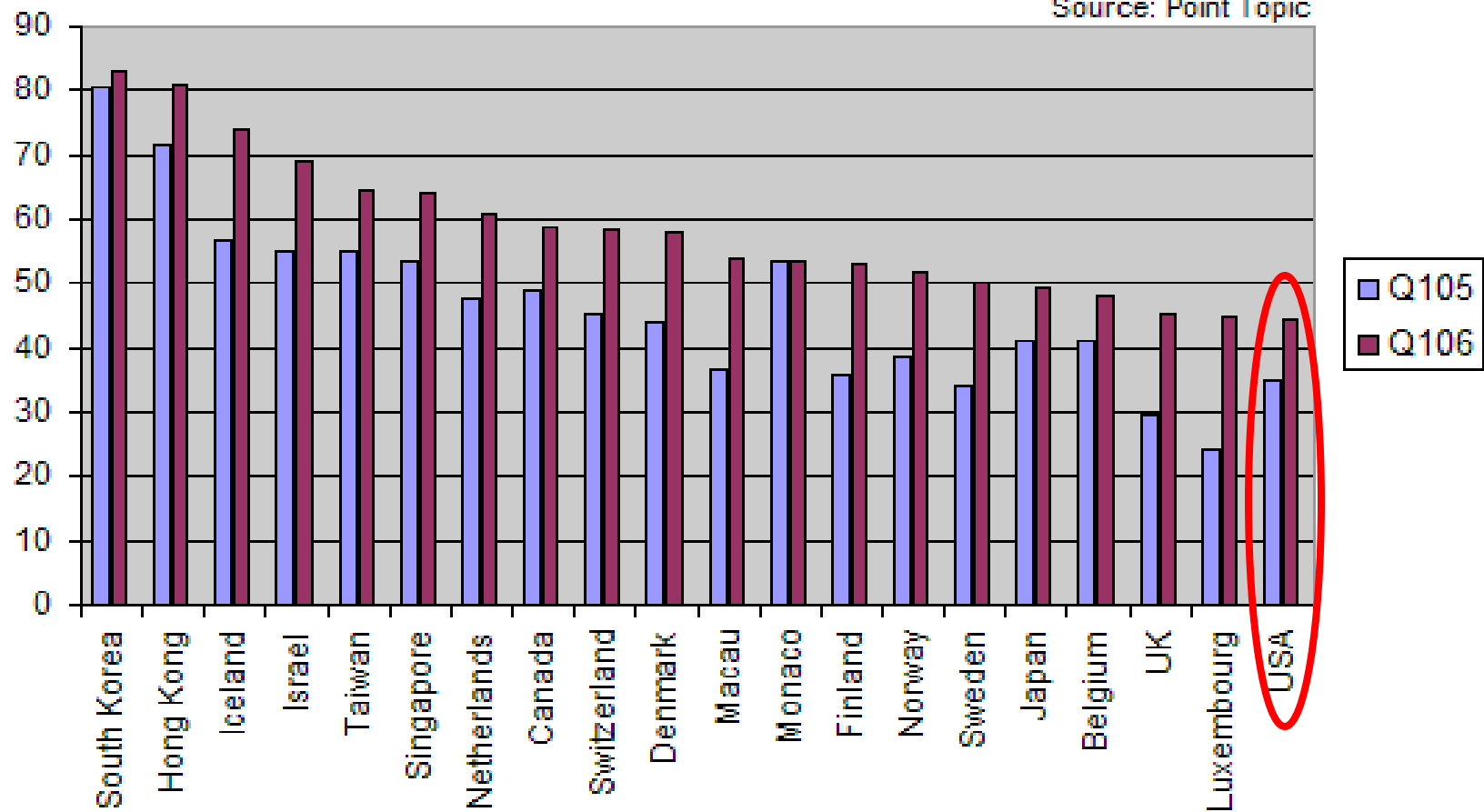
US is 15th



Top 20 Broadband Countries by household penetration 2005-2006

Broadband lines per 100 households

Source: Point Topic



US is 20th



Global Broadband Prices and Speed

Lowest prices for broadband, per 100 kbit/s per month, April 2006, and change 2005-06

	Economy	Company	Speed Mbit/s	Price per month USD	Price per 100 kbit/s	Change 2005-06
1	Japan	Yahoo! BB	51.2	31.19	0.07	-12.5%
2	Rep. of Korea	Hanaro	51.2	40.59	0.08	...
3	Netherlands	internet Access	20.4	27.97	0.14	-81.3%
4	Taiwan, China	Chunghwa	12.3	22.67	0.18	...
5	Sweden		24.6	56.08	0.23	-6.5%
6	Singapore	Starhub	30.7	73.17	0.24	-85.0%
7	Italy	Libero	12.3	37.23	0.30	-73.8%
8	Finland	Elisa	24.6	85.64	0.36	-51.4%
9	France	Free	10.2	37.29	0.36	-90.1%
10	United States	Comcast	4.1	20.00	0.49	...
11	Germany	Freenet.de	6.0	30.95	0.52	...
12	United Kingdom	Pipex	8.1	50.89	0.63	-53.6%
13	Hong Kong, China	Netvigator	6.1	51.17	0.83	...
14	Portugal	Sapo	8.1	75.82	0.93	...
15	Canada	Bell	4.0	41.26	1.01	-3.9%
	Unweighted Average		18.3	44.33	0.42	-50.8%

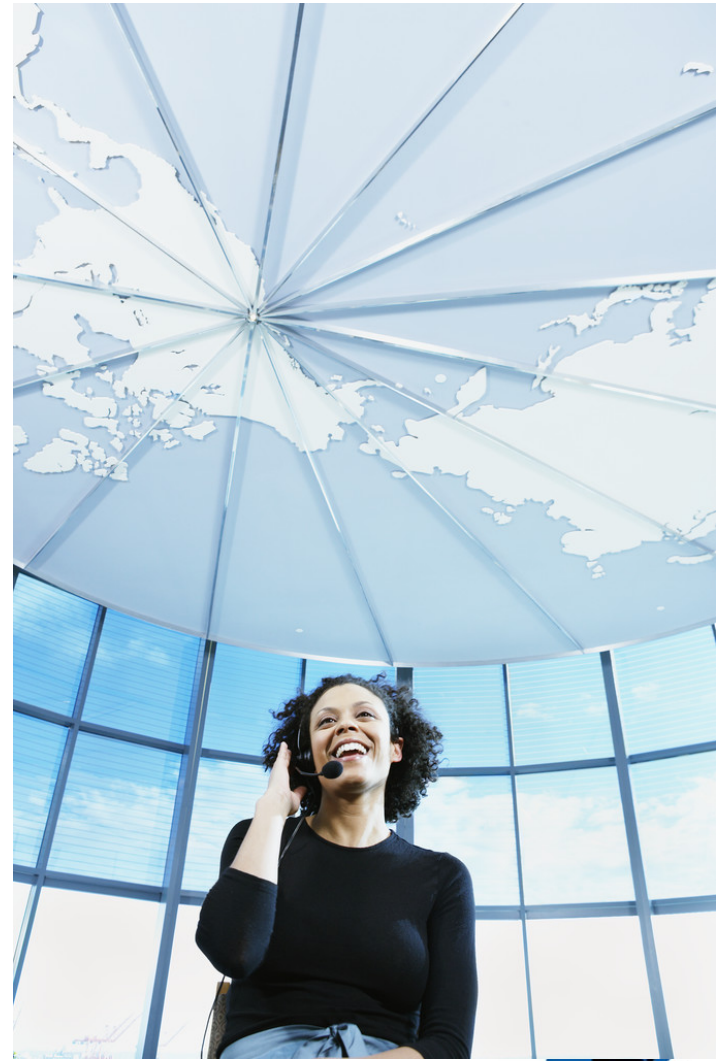
**US is
10th**

Note: The broadband prices were sampled in July 2005 and April 2006. Price change is shown only for those companies for which equivalent services were available in both periods.



Current Industry Issues

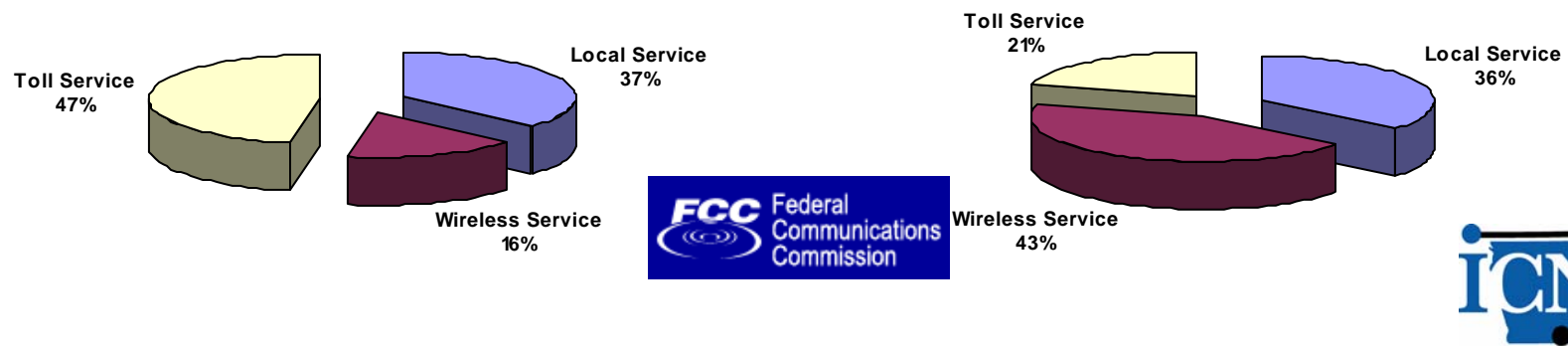
- Global Competition
- Public Sector Broadband Provision
- Landline vs. Wireless
- Telecommunications and Wireless Companies
- Universal Service Fund

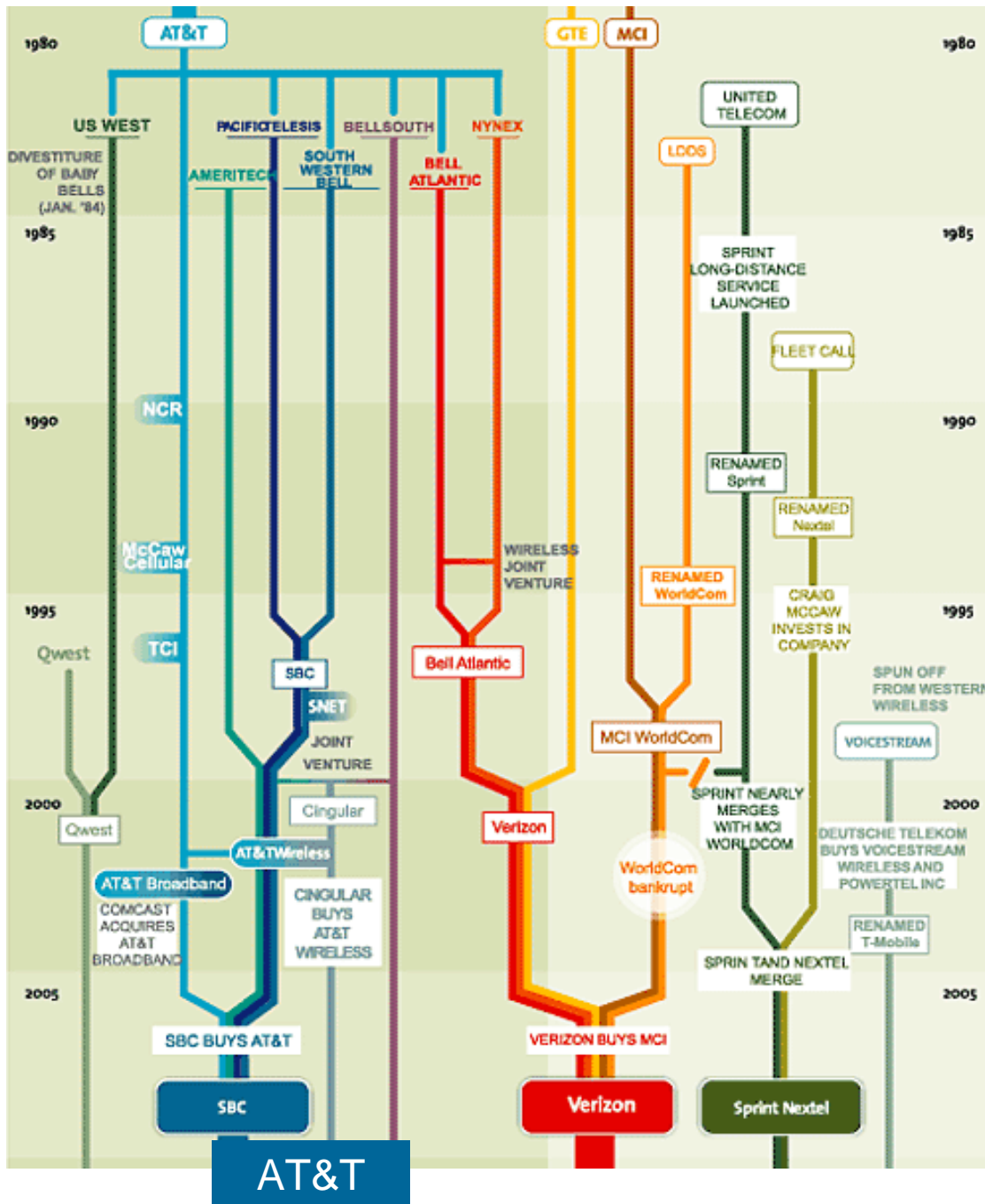


Landline Telephone Service

- Prediction that telephone service via copper wiring will no longer be sustainable by 2013
- Verizon is removing copper wiring as it is installing high-bandwidth fiber to the home

End-User Telecommunications Revenues





Corporate Progression since Divestiture

Universal Service Fund

The Telecommunications Act of 1996

- High Cost Support – subsidizes telephone companies that serve high cost areas.
- Low Income Support - assists low-income customers by subsidizing monthly telephone and connection charges to initiate service.
- Rural Health Care Support – provides discounted services for rural health care providers for telecommunications services similar their urban counterparts.
- Schools and Libraries Support (e-rate) - subsidizes telecommunication services, Internet access, and internal connections (the equipment to deliver these services).



USF - High Cost Service Areas

- Wired (Incumbent) vs. Competitive (Wireless) providers
- Encouragement of competition
- One year cap on increasing funds going to competitive providers
- FY 06 Iowa providers received \$105.6 million high cost area service dollars
 - \$63.4 million (60%) went to incumbents
 - \$42.2(40%) million went to competitive providers



What Are Other States Doing?

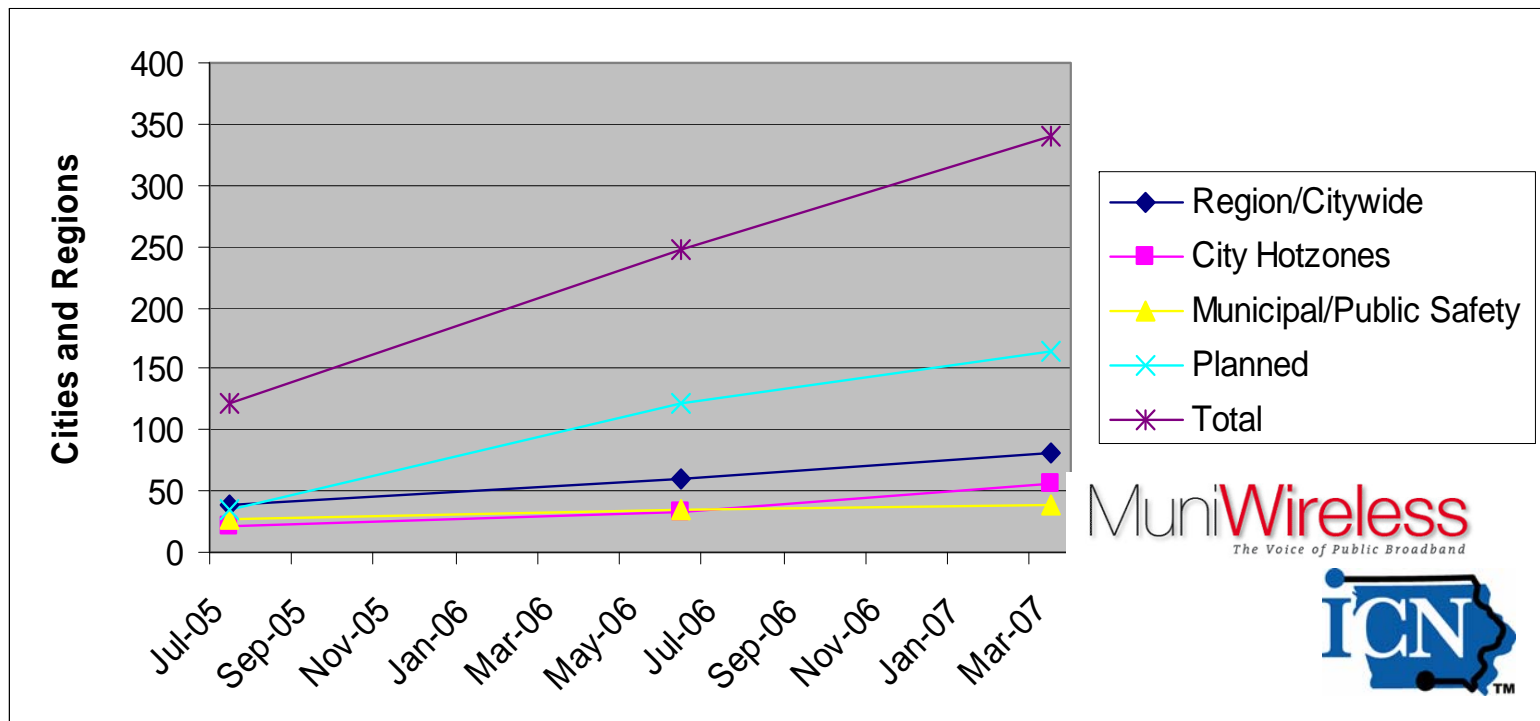
- Vermont - \$40 million to provide grants to collaborate with private providers for equipment
- South Carolina – Take an inventory of current broadband services available
- Kentucky – 100% Broadband coverage by the end of the 2007 calendar year



Choosing the Public Good

- In the U.S. Public Broadband, fiber or wireless, is either in place or in the process for areas with a total population of over 87 million

Cities and Regions – Wireless Broadband



Thank You

